

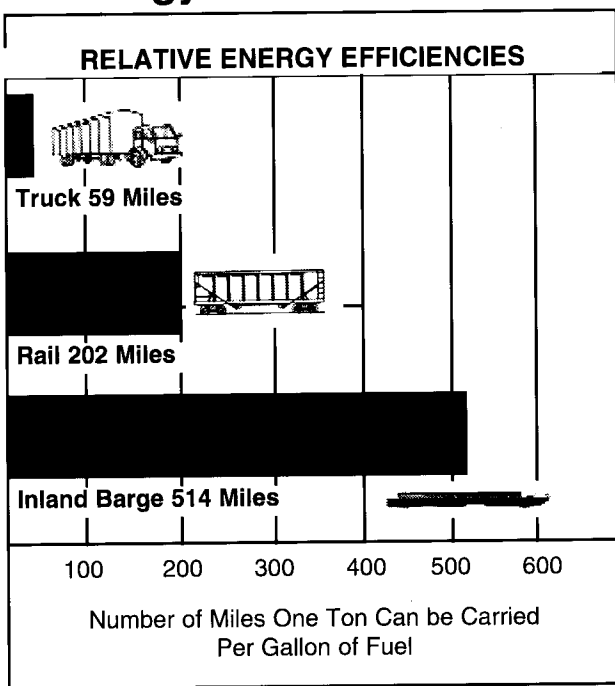
Environmental Advantages of Inland Barge Transportation



Inland barges carry approximately 15 percent of the nation's freight at the lowest unit cost while offering an environmentally- sound alternative to other land modes.

THE INLAND BARGE INDUSTRY:

Is Energy Efficient

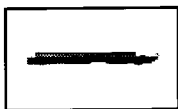


The measure of energy efficiency in transportation is the amount of energy used for the service provided, and can be expressed as the number of BTUs required to move one ton of cargo one mile (a ton-mile). In studies comparing rail, truck, and water, shallow-draft water transportation has been proven to be the most energy efficient method of freight transportation for moving bulk raw materials.

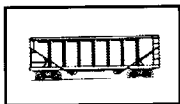
An analysis of rail and waterway fuel efficiency shows the average BTUs expended per ton-mile totals 433 for water transport, and 696 for rail transport. It is much more efficient to move cargo through water than over land.

Size is the key to water transport's efficiency. The capacity (1,500 tons) of an inland barge, which can carry five times its own weight, is impressive, and the industry as a whole has enormous capacity. The cargo capacity of a barge is 15 times greater than one rail car and 60 times greater than one semi trailer. To move the same amount of cargo transported by a standard tow (15 barges) would require a freight train 2 3/4 miles long or a line of trucks stretching more than 35 miles. On the lower Mississippi, one 10,000-horsepower towboat can push 40 barges that have the carrying capacity of 600 railcars or more than 2,200 trucks.

Cargo Capacities



1,500 Tons
52,500 Bushels
453,600 Gallons



100 Tons
3,500 Bushels
30,240 Gallons



25 Tons
875 Bushels
7,560 Gallons

Barge transportation is a low-energy form of transportation, and shifts of traffic to high-energy forms would be inconsistent with the nation's energy conservation efforts. The environmental advantages of water transport should be weighed when considering any activity that would result in a shift of cargo from the waterways to a land form of transport.

Is Extremely Safe

Transporting cargo safely is an important measure of environmental responsibility, and water transport has very few accidents, fatalities, or injuries.

Shallow-draft water transportation has definite advantages over competitive modes: it generally involves less urban exposure than either truck or rail; operates on a system that has few crossing junctures; and is relatively remote from population centers, all factors that reduce both the number and impact of waterway incidents.

For the amount of tonnage carried, barge spills occur quite infrequently. Barges, because of their much larger capacity, require far fewer units than either rail or truck to move an equivalent amount of cargo, and so the chance

of a spill is less likely. Also, design features of barges such as double-hulls and navigational aids help reduce accident frequency. Recent legislation requires all new inland tank barges carrying liquid cargoes to be built with both an inner and outer hull. However, for some time water transport operators have realized the need to protect the environment, and about two thirds of the inland tank barges that have been constructed in the last ten years have either a complete double hull, double sides, or a double bottom.

For any hazardous liquid material shipped by water, the United States Coast Guard maintains a comprehensive list of safeguards and controls that govern the design and construction of vessels and equipment, and personnel manning qualifications.

Construction of tank barges must be approved by the Coast Guard, and once in service, they are inspected annually. Coast Guard statistics show that water transportation not only is subject to a high degree of regulation, but also operates under a stringent regulatory program.

Causes Little Congestion

The steady increase in highway traffic in the U.S. has far outstripped any increase in infrastructure capacity, resulting in delays, safety problems, and congestion, costing the nation up to \$100 billion annually.

The results of this congestion are reflected in more accidents, increased energy consumption, environmental damage, increased commuting times, and greater social tension. Water transport, in contrast, does not have congestion problems, and seldom causes them for others. The fact is, that far from being congested, the country's water transport system is under utilized.

Produces Little Air/Noise Pollution

Some of the most pervasive and intrusive sources of noise and air pollution are transportation systems.

Noise levels have been rising due to a number of reasons, with transportation activity the major source. Air pollution comes from a wide variety of man-made and natural sources, with fossil fuel combustion the largest contributor. Air pollution caused by transportation includes pollutants directly emitted by engines as well as secondary pollutants formed by chemical reactions.

Even though air pollution resulting from water transport operations is negligible, the waterway industry has been, and is, installing vapor control systems to capture any emissions. Cumulatively, the barge industry has a relatively minor effect on air quality, consumes much less energy (and as a result, produces less air pollution) per ton-mile of freight carried than either rail or truck. For the most part, waterway operations are conducted away from population centers, which reduce the impact of its exhaust emissions. Little data exists on noise levels of barge operations, mainly because they are not considered a problem. Towboats operate well away from shore, with the sound of their engines muffled below the water line, and any noise levels are hardly audible beyond the immediate area of the tow.

Has Minimal Land Use/ Social Impact

For the most part, inland river transport has little impact on densely populated areas. These shallow-draft vessels operate in mid-river, well away from shore, and because of the large tonnage moved at one time, tow passages are infrequent. This low-profile type of operation is one of the transportation industry's best kept secrets.

Since most of the right-of-way for water transport is provided by nature, inland navigation is less likely than other transport forms to compete with non-transportation uses for land area, an important consideration in urban locations. Apart from a few connections and waterside terminals, waterways preempt very little land.

Produces Multiple Benefits

Besides navigation, transporting cargo by barge has a number of other benefits and many beneficiaries.

When a new navigation project is completed, more than water transportation benefits. The other major beneficiaries of developed waterway systems include recreation, flood control, public water supply, wildlife habitat, irrigation, and industrial use. And oftentimes, the benefits of these other purposes are as important as the waterway itself—which is an economic spur to the particular region where it is located. Navigation not only creates opportunities for new industries, but may also change trade patterns that can have a major economic impact on local and regional development.

In addition to navigation, commercial waterway activity has been a good environmental neighbor. In the process of building waterway projects, provisions are made to

preserve, enhance, or create wetland and aquatic habitats. National wildlife refuges and designated areas along the rivers are home to many species of fish and wildlife, and are used by both migratory and resident bird populations.

Conclusion

There is a growing national commitment to restoring and preserving our environment, a goal that has become a priority for the inland navigation industry.

The companies that make up the barge and towing industry have a reputation for a strong environmental stewardship and are dedicated to improving the compatibility of their operations with the environment in an effort to reduce environmental incidents to an absolute minimum. Pollution control, protection and enhancement of the environment, and maintenance of the ecological balance have long been major concerns of the waterway industry.

For Further Information

The Maritime Administration, seeking to improve and expand communications among American shippers, will be pleased to answer your inquiries and to hear your comments on the environmental aspects of surface transportation. Your inquiries will receive prompt attention from our Division of Domestic Trade.

The Maritime Administration point of contact is:

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U.S. Department of Transportation
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